

## Lancaster County Early Action Plan for the 8-Hour Ozone Standard

### **Background**

In 1997, the Environmental Protection Agency (EPA) revised the National Ambient Air Quality Standard (NAAQS) for Ozone from a one-hour standard to an 8-hour standard. This was done to reflect the latest understanding of the effects of ozone exposure and provide public health protection with adequate margin of safety. EPA will be designating areas as attainment (meeting the standard) or non-attainment (not meeting the standard) in April of 2004. This designation will be based on the most recent three years of monitoring data (i.e., 2001, 2002, 2003). The Department of Health and Environmental Control (DHEC) has an intensive monitoring network covering the state and routinely monitors for ozone during the months of April through October. This time period is often referred to as the "Ozone Season." If an area is designated non-attainment, the Clean Air Act (CAA) requires states to revise their State Implementation Plan (SIP) outlining how the area will return to attainment within a certain time period. If EPA designates areas in South Carolina as non-attainment in April of 2004, a revision to the South Carolina SIP will be due no later than 2007. Additionally, once an area is designated as non-attainment, the CAA has specific requirements that must be implemented. These requirements affect industry, economic development, and transportation. One requirement, Non-attainment New Source Review sets out the level of emissions reductions required for new and modified industrial facilities. Another requirement of non-attainment areas is to coordinate local transportation and air quality planning to ensure that transportation plans, programs and projects are consistent with air quality goals. According to the CAA, transportation plans, programs, and projects cannot create new violations of the Federal air quality standards; increase the frequency or severity of existing violations of the standard; or, delay attainment of standards.

The above approach is commonly referred to as the "traditional" approach. While safeguards for areas to return to attainment are included, certain prescriptive requirements may not be appropriate for all areas designated non-attainment for the 8-hour ozone standard. As a result, EPA provided an option for areas that were meeting the one-hour standard to attain the 8-hour ozone standard by December 31, 2007, and obtain cleaner air sooner than currently federally mandated. This option offers a more expeditious time frame for achieving emissions reductions, while providing "fail-safe" provisions for the area to revert to the traditional SIP process if specific milestones are not met. EPA will move forward with the designation process (attainment or non-attainment) but will defer the effective date, thus the prescriptive requirements of non-attainment designations, provided all terms and conditions of an Early Action Compact (EAC) are being met.

Forty-five counties in South Carolina elected to participate in the development of an Early Action State Implementation Plan (EAP). Participants in the EAC include the county, DHEC and the EPA. All of these parties agree to work together to implement federal, state and local emissions control measures that will allow the non-attainment areas to attain the 8-hour ozone standard earlier and therefore avoid implementing costly prescriptive measures. The EAC requires that all counties submit a local Early Action Plan to DHEC by March 31, 2004.

Although our county is not a potential area to be designated non-attainment for the 8-hour ozone standard, other areas in South Carolina may be designated non-attainment. As air knows no boundaries, implementation of emission reduction strategies and support of federal and state rules and regulations will help to provide cleaner air sooner to citizens of South Carolina.

## **What is Ozone?**

Ozone is a gas that occurs both in the Earth's upper atmosphere and at ground level. Ozone is one of six criteria pollutants used by the EPA as an indicator of air quality. Depending on where ozone is found, it can be good or bad. Occurring naturally in the upper atmosphere, ozone acts as a shield from the sun's harmful ultraviolet rays. However, ground-level ozone is a concern during the summer months when the weather conditions are favorable for producing ozone. Ozone is formed by chemical reactions between volatile organic compounds (VOCs) and oxides of nitrogen (NOx) in the presence of sunlight. Ozone is a major ingredient of smog.

## **Ozone Health Effects**

Ozone can cause permanent damage to the respiratory system. Active children are at highest risk from ozone exposure because they often spend a large amount of time outdoors. Active adults of all ages who exercise or work outdoors have an increased risk of exposure to elevated levels of ozone. People with asthma or other respiratory diseases are particularly sensitive to ozone exposure.

## **Sources of NOx and VOCs**

NOx and VOCs come from emissions from the following sources: stationary, area, mobile and natural. Stationary sources include larger permitted industry and power plants. Area sources are small, stationary and non-transportation sources that collectively contribute to air pollution. Area sources include gas stations (emit NOx) and dry-cleaners (emit VOCs). Mobile sources are divided into two categories, on-road and off-road. The off-road mobile sources include trains, ships, boats, airplanes, lawn equipment, and construction equipment. On-road mobile sources include cars, trucks, and buses. Natural sources for VOCs are released from vegetation, mostly trees in South Carolina. Natural sources for NOx are very rare and include emissions from soil, lightning, and oceans.

## **Stakeholder Involvement**

Refer to the progress reports submitted every six months for information regarding the stakeholder process and a complete listing of the stakeholder meetings and public outreach initiatives.

## **Emission Reduction Strategies**

Through the development and implementation of this plan, local emission reduction strategies that are economically feasible and that make sense for the county will be implemented no later than April 2005. In doing so, these efforts should assist the state in achieving the 8-hour ozone standard by December 31, 2007, and maintaining the standard beyond 2012.

A number of federal control measures are in place and/or will be phased in over the next several years. These programs include the Tier II and Low Sulfur Gasoline and also the NO<sub>x</sub> SIP call. All of these programs have been developed to help areas attain air quality standards.

The state is also proposing new and/or modifications to regulations that will assist non-attainment areas. The State programs could include a regulation that would result in VOC and NO<sub>x</sub> reductions; modifications to the open burning regulations and a process to assure transportation plans, programs, and projects consider air quality goals.

Attachment 1 contains a list of emission reduction strategies that will be implemented by the county. While it may not be possible to determine emissions reductions for each of the strategies included, directionally sound strategies have been selected and the county anticipates the cumulative impact of adopting each of these strategies will assist in maintaining the standard.

## **Maintenance**

The county will continue to address strategies that will assist in long-term maintenance of the 8-hour ozone standard. DHEC will continue to provide the air quality monitoring necessary to determine attainment of the 8-hour ozone standard. Yearly, at the end of each ozone season, there will be a review and evaluation to determine the effectiveness of the strategies adopted. If necessary, additional emission reduction strategies may be adopted. Maintenance of the standard will depend upon the success of emission reduction strategies implemented as well as federal and state initiatives.

Attachment 1  
Lancaster County Early Action Compact  
List of Emission Reduction Strategies

Based on stakeholder consultation and taking into consideration resource and political constraints, the following control measures under consideration can be reasonably implemented. It is anticipated these measures under consideration will assist Lancaster County in achieving and/or maintaining the 8-hour ozone standard by 2007.

<b>Measure under Consideration</b>	<b>Description of measure</b> (A more detailed description will be included in the Early Action Plan.)	<b>Estimate of emission reductions (if available)</b>	<b>Proposed date for implementation</b>	<b>Geographic area and/or local government</b>
<i>Early Action Plan Organization Meeting</i>	<i>County officials met with department heads, citizens, education, and corporate officials to begin organizing an Early Action Plan. Attended by 25 individuals.</i>	Not Available	<i>May, 2003</i>	<i>County wide</i>
<i>Ozone Action Coordinator</i>	<i>County staff person responsible for ozone education/outreach and dissemination of ozone forecast.</i>	Not available	<i>July, 2003</i>	<i>County wide</i>
<i>Park and Ride Facilities</i>	<i>County staff will evaluate the number of workers commuting to other counties within South Carolina and work with local businesses willing to allow park and ride opportunities at their place of business. The county has set a goal of 20 percent of the workforce carpooling by the year 2007.</i>		<i>July, 2003 (On-going effort)</i>	<i>County wide</i>
<i>Web Site</i>	<i>Lancaster County is in the process of developing a web site devoted to educating the public about ozone emissions and ways the public can assist in lowering airborne pollutants</i>	<i>Not Available</i>	<i>July, 2003</i>	<i>County Wide</i>
<i>Public Service Announcements, Learn TV Cable, Education TV</i>	<i>Lancaster County will produce public service announcements that will be shown on local cable television outlets and the County's education TV channel promoting ways the public can improve air quality.</i>	<i>Not Available</i>	<i>July, 2003</i>	<i>County Wide.</i>
<i>Community Meetings</i>	<i>Lancaster County officials will be meeting with the Chamber of Commerce, Rotary, and other community groups in order to explain the Early Action Plan and steps that can be taken by individuals and companies to improve air quality. Plan also includes creating stakeholder agreements with individuals, companies, and civic groups in order to implement air quality measures that improve the community.</i>	<i>Not Available</i>	<i>June -July 2003</i>	<i>County Wide</i>
<i>Alternate Work Schedule</i>	<i>Policy will be developed for implementing AWS for employees of area business and industry</i>	<i>Not Available</i>	<i>April 2004</i>	<i>County Government and Local Companies</i>

<i>Education</i>	<i>Educate the public through web sites, education TV, education TV slides, PSAs, school group meetings, web sites, radio and print ads, etc. about the EAP and ways individuals and businesses can improve air quality (i.e. vehicles, home appliances, boats, heavy machinery, alternative fuels, agriculture, etc.)</i>	<i>Not Available</i>	<i>2003-2007 On-going</i>	<i>County Government, School System, Learn TV, Education/Government TV</i>
<i>Recycling Programs</i>	<i>Continue to implement and improve education about County's recycling programs</i>	<i>Not Available</i>	<i>2003 Ongoing</i>	<i>County Government</i>
<i>Car Fleets Using Alternative Energy Sources</i>	<i>Begin planning to implement alternative fuel sources for County fleets and encouraging alternative fuel fleets at local industry.</i>	<i>Not Available</i>	<i>2003 Ongoing</i>	<i>County Government, Local Industry</i>
<i>Heavy Machinery</i>	<i>Implement educational efforts and possibly provide tax breaks to companies that utilize emission control systems on heavy machinery</i>	<i>Not Available</i>	<i>2003 Ongoing</i>	<i>County Government, Local Industry</i>
<i>Traffic Synchronization</i>	<i>Continue to implement synchronization of all traffic lights in municipal areas to decrease stop and go traffic.</i>	<i>Not Available</i>	<i>2003 Ongoing</i>	<i>County Government, Municipal Governments, State DOT</i>
<i>School Buses</i>	<i>Improve routes to decrease stop-and-go. Implement steps to purchase alternative fuel buses for fleets</i>	<i>Not Available</i>	<i>2003 Ongoing</i>	<i>County Government, State Department of Education</i>
<i>Planning</i>	<i>Continue proper planning of communities to decrease urban sprawl and limit the amount of driving in communities. Density restrictions. Implementation of walking/bike trails in residential areas that connect to shopping and retail centers</i>	<i>Not Available</i>	<i>2003 Ongoing</i>	<i>County Government</i>
<i>Student Driving</i>	<i>Restrict lower grades in high school from operating and driving cars to school</i>	<i>Not Available</i>	<i>August, 2003</i>	<i>County Government</i>
<i>Legislation</i>	<i>Implement legislation to control outdoor burning and educate the public about hazards</i>	<i>Not Available</i>	<i>August, 2003</i>	<i>County Government</i>

Emission Reduction Strategy	Description and analysis of how strategy will be implemented	Estimate of emission reductions (if available)	Date for implementation	Resource Concerns/ Constraints	Geographic area and/or local government
Air Quality Contact	One person will be identified as the Air Quality Contact. At a minimum, this contact will be responsible for ozone education/outreach and dissemination of ozone forecast.	Not available	March 2003	County wide	Air Quality Contact
Support state-wide efforts	Allendale County will support the efforts of SC DHEC regarding state-wide emission reduction strategies.	Not available		County wide	Support state-wide efforts
Measures taken to present	Allendale County Emergency Management Agency distributed to all county employees, information about Air Quality basics and protective measures.		Completed on May 20, 2003.	Allendale County Government	Measures taken to present